

## **Certificate of Analysis**

Lab No. 602013 (ALTEBO)

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Sample Description: Motor silk (additive test)

## Dear Bill:

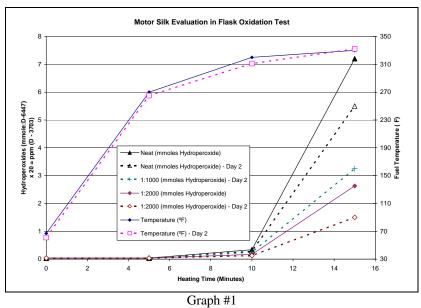
Thank you for your confidence in Herguth Laboratories, Inc. Please accept this report and attachments as our conclusion to the above numbered project/sample descriptions.

As the attached graph shows increasing the additive concentration to 1:1000 from 1:2000 did not have much effect on the hydroperoxide production of the fuel heated longer than 10 minutes. The lab was about 5 - 10 F cooler for the 2<sup>nd</sup> run (affects fuel films refluxing on sides of flask) so we reran neat and 1:1000 fuels and rechecked temperature during fuel sampling for direct comparison (Day 2/2<sup>nd</sup> Run) due to expected scatter in my test results.

The enclosed data indicates that the Motor Silk additive has some hydroperoxide inhibition capability (acts as a hydroperoxide decomposer instead of blocking production) but is unable to completely stop the accelerated oxidation of the ULSD fuel at elevated temperatures.

Approximate level of hydroperoxides from Graph #1 show Motor Silk reduces the generation of hydroperoxides in heated diesel fuel by  $\sim 68\%$  for the 1:2000 mix and  $\sim 50\%$  for the 1:1000 mix.

Neat Fuel 1 <sup>st</sup> Run = 1440	1:2000 1 <sup>st</sup> Run Motor Silk = 520	1:1000 1 <sup>st</sup> Run Motor Silk = 640
Neat Fuel 2 <sup>nd</sup> Run = 1100	$1:2000 \ 2^{\text{nd}} \ \text{Run Motor Silk} = 300$	Not Run
Average Neat = 1270	1:2000 Average = 410	1:1000 Average = 640



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Respectfully submitted,

William R. Hugun

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